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| 10/565,331 | 09/11/2006 | Shawn DeFrees | 705704 | 2246 |

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LEYDIG VOIT & MAYER, LTD
TWO PRUDENTIAL PLAZA, SUITE 4900
180 NORTH STETSON AVENUE
CHICAGO, IL 60601-6731

| EXAMINER | |
|---|---|
| HUYNH, PHUONG N | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1644 | |

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| 05/27/2010 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

Chgpatent@leydig.com

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/565,331 | DEFREES ET AL. | |
| | Examiner | Art Unit | |
| | PHUONG HUYNH | 1644 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *three* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *26 February 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1 and 3-25* is/are pending in the application.

4a) Of the above claim(s) *14-25* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/6/10; 2/26/10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application.
6) ☐ Other: _____.

**DETAILED ACTION**

1. Claims 1 and 3-25 are pending.

2. Claims 14-25 stand withdrawn from further consideration by the examiner, 37 C.F.R. 1.142(b) as being drawn to non-elected inventions.

3. Claims 1 and 3-13, drawn to a compound having the formula: Ab-G-L-T, are being acted upon in this Office Action.

4. The references NE, NF, NG and NH in the information disclosure statement, filed February 26, 2010 fail to comply with 37 CFR 1.98(b) because the publication for each of said is missing. It has been placed in the application file, but the information referred to therein has not been considered.

5. The rejection of claims 1 and 3-11 under 35 U.S.C. 102(e) as being anticipated by US Pat No 7,125,843 (of record, filed April 9, 2003 claimed earliest priority to Oct 10, 2001; PTO 892) has been obviated by the amendment filed February 26, 2010.

6. The declaration under 37 CFR 1.132 filed February 26, 2010 by Shawn DeFrees is sufficient to overcome the rejection of claims 1 and 3-11 under 35 U.S.C. 102(e) as being anticipated by US Pat No 7,125,843 (of record, filed April 9, 2003 claimed earliest priority to Oct 10, 2001; PTO 892).

7. In view of the amendment filed February 23, 2010, the following rejections remain.

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1 and 3-13 stand rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

According to MPEP 2163, to satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. See, e.g., *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319, 66 USPQ2d 1429, 1438 (Fed.Cir. 2003); *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d at 1563, 19 USPQ2d at 1116.

*Vas-Cath Inc. v. Mahurkar*, 19 USPQ2d 1111, makes clear that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the written description inquiry, whatever is now claimed." (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See Vas-Cath at page 1116.). One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481, 1483. In *Fiddes v. Baird*, claims directed to mammalian FGF's were found unpatentable due to lack of written description for the broad class. The specification provides only the bovine sequence.

The MPEP lists factors that can be used to determine if sufficient evidence of possession has been furnished in the disclosure of the Application. These include "level of skill and knowledge in the art, partial structure, physical and/or chemical properties, functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and the method of making the claimed invention. Disclosure of any combination of such identifying characteristics that distinguish the claimed invention from other materials and would lead one of skill in the art to the conclusion that the applicant was in possession of the claimed species is sufficient." MPEP § 2163.

Further, for a broad generic claim, the specification must provide adequate written description to identify the genus of the claim. In Regents of the University of California v. Eli Lilly & Co. the court stated: "A written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials." Fiers, 984 F.2d at 1171, 25 USPQ2d at 1606; In re Smythe, 480 F.2d 1376, 1383, 178

USPQ 279, 284985 (CCPA 1973) ("In other cases, particularly but not necessarily, chemical cases, where there is unpredictability in performance of certain species or subcombinations other than those specifically enumerated, one skilled in the art may be found not to have been placed in possession of a genus ...") Regents of the University of California v. Eli Lilly & Co., 43 USPQ2d 1398.

The MPEP further states that if a biomolecule is described only by a functional characteristic, without any disclosed correlation between function and structure of the sequence, it is "not sufficient characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence." MPEP 2163. The MPEP does state that for a generic claim the genus can be adequately described if the disclosure presents a sufficient number of representative species that encompass the genus. MPEP 2163. If the genus has a substantial variance, the disclosure must describe a sufficient variety of species to reflect the variation within that genus. See MPEP 2163. Although the MPEP does not define what constitute a sufficient number of representative species, the courts have indicated what do not constitute a representative number of species to adequately describe a broad genus. In Gostelli, the courts determined that the disclosure of two chemical compounds within a subgenus did not describe that subgenus. In re Gostelli, 872, F.2d at 1012, 10 USPQ2d at 1618.

The factors considered in the Written Description requirement are (1) level of skill and knowledge in the art, (2) partial structure, (3) physical and/or chemical properties, (4) functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and the (5) method of making the claimed invention.

In the instant case, the claims encompass a genus of compound having the formula: Ab-G-L-T wherein Ab is any and all antibody, G is any intact glycosyl linking group covalently joining Ab to L, L is any bond or any spacer moiety such as any substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl and substituted or unsubstituted aryl moieties, such as any poly(ethylene glycol) moiety covalently joining G to T and T is any toxin.

Claims 4-6 encompass any compound having the structure as set forth in claim 4 wherein L1 is any bond or any linker moiety, A is any amplifier moiety, or any dendrimer, G is any antibody and T is any toxin.

At the time of filing, the specification discloses only the specific monoclonal antibodies that bind to RSV, IL-2 receptor, CEA, platelet IIb/IIIa receptor, EGF or HER-2 receptor, CD56, EGFR, CD33, CD22, or OBA1 antigen covalently linked to toxin via O-glycosylation through a

spacer such as polyethylene glycol, polylysine, or dendrimer PAMAM, sugar for targeting toxin to the specific tissue, see pages 19 and page 38 Fig 11.

The specification does not describe the *binding specificity* associated with the complete structure of any and all antibody for the claimed compound. The specification does not adequately describe the common structural attribute, i.e., CDRs of antibody associated with the binding specificity, intact glycosyl linking group other than the O-linked glycosylation site for an attachment of sugar selected from the group consisting of acetylgalactosamine, galactose, mannose, GlcNAc, glucose, fucose or xylose.

Witte et al (Cancer and Metastasis Reviews 17: 155-161, 1998; PTO 892) teach monoclonal antibody such as DC101 that binds to mouse VEGFR2 and blocks the binding of VEGF to its receptor; however, the same antibody does not even binds to human KDR (VEGFR2), much less VEGFR from other mammal, see abstract, in particular. Without guidance as to the binding specificity of the antibody in the claimed compound, it is unpredictable which undisclosed antibody when linked to toxin via an intact glycosyl linking group is effective for treating cancer in humans by delivering the toxin to the right tissue or cell type.

Further, the state of the art at the time of filing is such that the formation of an intact antigen-binding site generally requires the association of the complete heavy and light chain variable regions of a given antibody, each of which consists of three CDRs which provide the majority of the contact residues for the binding of the antibody to its target epitope. The amino acid sequences and conformations of each of the heavy and light chain CDRs are critical in maintaining the antigen binding specificity and affinity which is characteristic of the parent immunoglobulin. It is expected that all of the heavy and light chain CDRS (all six CDRs) in their proper order and in the context of framework sequences which maintain their required conformation, are required in order to produce a protein having antigen-binding function and that proper association of heavy and light chain variable regions is required in order to form functional antigen binding sites.

Even minor changes in the amino acid sequences of the heavy and light variable regions, particularly in the CDRs, may dramatically affect antigen-binding function as evidenced by Rudikoff et al (of record, Proc Natl Acad Sci USA 79: 1979-1983, 1982; PTO 892). Rudikoff et al teach that the alteration of a single amino acid in the CDR of a phosphocholine-binding myeloma protein resulted in the loss of antigen-binding.

Barrios et al (J Molecular Recognition 17: 332-338, 2004; PTO 892) teach the amino acid residues in the CDRs and the length of the antibody heavy chain complementarity determining region (CDR3) are critical for antigen specific binding site (see abstract, in particular). The length of the amino acid sequence that linked the CDRs of immunoglobulin light and heavy chains is important in maintaining their required conformation for binding and in vivo activity.

Further, the function of an antibody molecule is dependent on its three dimensional structure, which in turn is dependent on its primary amino acid sequence. Changing the amino acid sequence of an antibody may adversely affect its activity. Likewise, fragments of the antibody may not retain the appropriate three-dimensional structures necessary to foster binding activity. There are also critical framework residues which are also important in positioning the CDRs for interaction with antigen or which are involved in interactions between the heavy and light chains. There is no guidance as to which residues in all antibodies and toxins the attachment site and whether the antibody retains antigen binding and the toxin activity remain uncompromised.

Further, there is no single species of antibody-toxin conjugate has been disclosed to have targeting toxin to the site of interest. There is insufficient description of a common core structure that would allow one of skill in the art to practice the invention as claimed. The description requirement of the patent statue requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See In re Wilder, 736, F.2d 1516, 1521, 222 USPQ 369, 372-73 (Fed. Cir. 1984) (affirming rejection because the specification does "little more than outlin[e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate.") Accordingly, it is deemed that the specification fails to provide adequate written description for the genus of antibody covalently linked to a genus of intact glycosyl linking group or to a genus of spacer moiety to a genus of toxin as claims and does not reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the entire scope of the claimed invention.

Applicant is reminded that Vas-Cath makes clear that the written description provision of 35 U.S.C. § 112 is severable from its enablement provision (see page 1115). Applicant is directed to the Guidelines for the Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1103, Friday April 11, 2004.

Applicants' arguments filed February 26, 2010 have been fully considered but are not found persuasive.

Applicants' position is that the disclosed monoclonal antibodies, combined with the disclosure of the specification as a whole, are sufficient to convey possession of the invention. However, Applicants also submit that specific characterization of particular antibodies is not required to provide written description of the present claims. The Office Action further provides extensive discussion of the importance of an antibody's amino acid sequence to its ability to bind an antigen. However, in the absence of any claim term relating to specificity for a particular antigen, Applicants submit that the full possession of the scope of the term "antibody" is conveyed on the basis that general preparation and use of antibodies is routine in the art. See, e.g., U.S. Patent and Trademark Office Written Description Guidelines (2000), Example 13.

Contrary to applicant's assertion that the binding specificity of the antibody for the particular antigen in the claimed compound is not required to show possession of the compound at the time of filing, binding specificity of the antibody in the claimed compound is critical to convey to one of ordinary skill in the art to show applicants were in possession of the genus of claimed compound. The intended use of the claimed compound is for *site specific and target-oriented* delivery of toxin attached to the antibody through an intact glycosyl linking group for the purpose of treating malignancies and certain neurological disorders, see paragraph [0024].

At the time of filing, the specification describes just the antibodies that bind to RSV, IL-2 receptor, CEA, platelet IIb/IIIa receptor, EGF or HER-2 receptor, CD56, EGFR, CD33, CD22, or OBA1 antigen for covalently linked to toxin via intact O-glycosylation through a spacer such as polyethylene glycol, polylysine, or dendrimer PAMAM, sugar for targeting toxin to the specific tissue, see pages 19 and page 38 Fig 11. As such, only the compounds comprising such antibodies that bind to such receptors mentioned above meet the written description requirement. For these reasons, the rejection is maintained.

10. Claims 1 and 3-13 stand rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling only for a compound having the formula: Ab--G--L--T wherein Ab is an antibody that binds to RSV, IL-2 receptor, CEA, platelet IIb/IIIa receptor, EGF or HER-2 receptor, CD56, EGFR, CD33, CD22, or OBA1 antigen, G is an intact glycosyl linking group covalently joining Ab to L; L is a bond or a spacer moiety covalently joining G to T; and T is a

toxin, wherein said spacer moiety is a member selected from substituted or unsubstituted alkyl, substituted or unsubstituted heteroalkyl and substituted or unsubstituted aryl moieties, **does not** reasonably provide enablement for how to use such compound as set forth in claims 1 and 3-13 without guidance as to the binding specificity of such antibody in the claimed compound. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in **scope** with these claims.

Factors to be considered in determining whether undue experimentation is required to practice the claimed invention are summarized *In re Wands* (858 F2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)). The factors most relevant to this rejection are the scope of the claim, the amount of direction or guidance provided, the lack of sufficient working examples, the unpredictability in the art and the amount of experimentation required to enable one of skill in the art to practice the claimed invention. The specification disclosure is insufficient to enable one skilled in the art to practice the invention as broadly claimed without an undue amount of experimentation.

The claims encompassed innumerous antibody covalently linked to any and all toxin via any intact glycosyl linking group and bond or spacer moiety or amplifier moiety for the claimed compound.

Enablement is not commensurate in scope with how to use any compound as set forth in claims 1 and 3-13 without guidance as to the binding specificity of such antibody in the claimed compound for targeting toxin.

At the time of filing, the specification discloses only the specific monoclonal antibodies that bind to RSV, IL-2 receptor, CEA, platelet IIb/IIIa receptor, EGF or HER-2 receptor covalently linked to toxin via O-glycosylation through an intact glycosyl linking group and a spacer such as polyethylene glycol, polylysine, or dendrimer PAMAM, for targeting toxin to the specific cell or tissue, see pages 19 and 38 and FIG 11.

The specification does not teach how to use any and all compound comprising any antibody other than the specific antibody mentioned above covalently linked to toxin via O-glycosylation through a pacer such as polyethylene glycol, polylysine, or dendrimer PAMAM for targeting toxin to the tumor or tumor surrounding tissue.

The specification does not teach the *binding specificity* associated with the structure of any and all antibody for the claimed compound.

Witte et al (of record, Cancer and Metastasis Reviews 17: 155-161, 1998; PTO 892) teach monoclonal antibody such as DC101 that binds to mouse VEGFR2 and blocks the binding of VEGF to its receptor; however, the same antibody does not even binds to human KDR (VEGFR2), much less VEGFR from other mammal, see abstract, in particular. Without guidance as to the binding specificity of the antibody in the claimed compound, it is unpredictable which undisclosed antibody when linked to toxin via an intact glycosyl linking group is effective for treating cancer in humans by delivering the toxin to the right tissue or cell type.

Methods for antibody and binding fragment were known in the art. However, neither the specification nor the state of the art at the time of the invention provided the necessary guidance for using any and all antibody with an expectation that any antibody is useful for treating any disease such as cancer when linked to toxin.

Vitetta et al (of record, Science 313: 308-309, 2006; PTO 892) teach given the complex structure of antibodies, designing therapeutic antibodies can be unpredictable; in the case of anti-CD28 antibody, although preclinical data show that the antibody was safe when administered to two species of monkeys, healthy human injected with the anti-CD28 antibody suffered immediate and profound side effects (see pages 308-309, in particular).

Therefore, it is unpredictable whether any and all compound comprising any antibody linked to any toxin via an intact glycosyl linking group and spacer moiety or amplifier moiety can be used as a pharmaceutical composition for treating any diseases *in vivo*.

Given the genus of antibody in the claimed compound, the lack of *in vivo* working example, it is unpredictable which undisclosed antibody when linked to any and all toxin is useful for treating any and all diseases. Accordingly, it would require undue experimentation of one skilled in the art to practice the claimed invention. See page 1338, footnote 7 of Ex parte Aggarwal, 23 USPQ2d 1334 (PTO Bd. Pat App. & Inter. 1992).

In re wands, 858 F.2d at 737, 8 USPQ2d at 1404 (Fed. Cir. 1988), the decision of the court indicates that the more unpredictable the area is, the more specific enablement is necessary. In view of the quantity of experimentation necessary, the limited working examples, the unpredictability of the art, the lack of sufficient guidance in the specification and the breadth of the claims, it would take an undue amount of experimentation for one skilled in the art to practice the claimed invention.

Applicants' arguments and the declaration of Shawn DeFrees under Rule 132 filed February 26, 2010 have been fully considered but are not found persuasive.

Applicants' position is that it is not proper to read additional limitations from the specification into a claim. The present claims do not recite the use of the compounds in treating cancer in humans, or in treating diseases *in vivo. One of ordinary skill in the art would have been well aware of the range of therapeutic antibodies available and their respective in vivo* and *in vitro* uses at the time the present application was filed. Moreover, the present specification states that modification of such polypeptides according to the methods of the present invention, "enhance" their "use as a therapeutic or diagnostic agent" (page 6, lines 19-20). Therefore, in considering the teachings of the specification, one of ordinary skill in the art would understand that the presently claimed compounds could be used in existing therapeutic and diagnostic uses for the antibody employed in the compound.

Based on the foregoing, Applicants respectfully submit that the Office Action fails to make out a prima facie case of non-enablement. In any event, however, Applicants submit herewith a Declaration Under 37 C.F.R. § 1.132 by co-inventor Shawn DeFrees, which further addresses the enablement issue.

By way of the Rule 132 Declaration, Dr. DeFrees explains that the claims of the present application are directed to compounds comprising an antibody joined to a toxin by way of an intact glycosyl linking group and a bond or spacer moiety and that, in order to prepare and use such compounds based on the information in the patent application, it is not necessary to know the binding specificity of the antibody for any target. Dr. DeFrees notes that, well prior to 2006 (i.e., the filing date of the present application), a variety of antibodies were being used for therapeutic purposes and that the compounds claimed in the present application, incorporating those antibodies, can be used in the same manner as such antibodies.

Accordingly, Dr. DeFrees confirms that the disclosure in the present application, in combination with the state of the art at the time the present application was filed in 2006, would have allowed one of ordinary skill in the art to make and use the claimed invention without undue experimentation.

Contrary to applicant's assertion that the binding specificity of the antibody for the particular antigen in the claimed compound is not required to show possession of the compound

at the time of filing, binding specificity of the antibody in the claimed compound is critical to convey to one of ordinary skill in the art to show applicants were in possession of the genus of claimed compound. The intended use of the claimed compound is for *site specific and target-oriented* delivery of toxin attached to the antibody through an intact glycosyl linking group for the purpose of treating malignancies and certain neurological disorders, see paragraph [0024].

The passage cited by applicants "page 6, lines 19-20" for "enhance" their "use as a therapeutic or diagnostic agent" is part of the background and NOT part of the invention.

Even assuming the compound is for enhance diagnostic use as argued, neither the specification nor the art do not teach the use antibody conjugated to *toxin* for diagnostic purpose in vitro or in vivo. As such, the remaining use of the claimed compound is for therapeutic purpose. This is consistent with the summary of invention, the intended use of the claimed compound is for *site specific and target-oriented* delivery of toxin attached to the antibody through an intact glycosyl linking group for the purpose of treating malignancies and certain neurological disorders, see paragraph [0024]. One of the guidelines for enablement under 35 U.S.C. 112, first paragraph is how to make and how to use the claimed product. The declaration of Shawn DeFrees under Rule 132 filed February 26, 2010 has been fully considered but is not found persuasive. While it is not necessary to know the binding specificity of the antibody for *making* the compound, the use of such compound for *site specific and target-oriented* delivery of toxin requires the binding specificity of such antibody in the claimed compound. Until the binding specificity of the antibody in the claimed compound is known, one of ordinary skill in the art cannot *use* the claimed compound. For these reasons, the rejection is maintained.

11. No claim is allowed.

12. **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong Huynh, Ph.D. whose telephone number is (571) 272-0846. The examiner can normally be reached Monday through Thursday from 9:00 a.m. to 6:30 p.m. and alternate Friday from 9: 00 a.m. to 5:30 p.m. A message may be left on the examiner's voice mail service. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The IFW official Fax number is (571) 273-8300.

14. Any information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Phuong Huynh/
Primary Examiner, Art Unit 1644
May 21, 2010